Data Acquisition and Signal Conditioning Driver Software Options

NI-DAQmx

- Compatible with more than 300 data acquisition devices
- Full-featured driver software for Windows and Linux®
- High-performance driver engine
- Fast single-point and multithreaded I/O
- Automatic code generation with the DAQ Assistant
- Virtual channels for simple measurement configuration
- Multiple-device synchronization
- Optimized integration with LabVIEW VIs and analysis
- API for LabVIEW, ANSI C/C++, C#, Visual Basic .NET, and Visual Basic
- Free data-logging software included

NI-DAQmx Base

- Compatible with more than 80 data acquisition devices
- Multiplatform driver for Linux, Mac OS X, Windows Mobile, Windows CE, and Windows Vista/XP
- Subset of NI-DAQmx functionality
- Similar programming interface to NI-DAQmx
- Basic DAQ driver for LabVIEW and ANSI C

Measurement Hardware DDK

- Custom-driver development tools
- Register-level programming interface
- Designed for OEM customers
- Data acquisition for virtually any OS



Overview

The quality of the driver software is just as important as the quality of the measurement hardware. National Instruments provides three levels of data acquisition (DAQ) software, each with its own unique features. The result is a complete offering of data acquisition software to simplify use of National Instruments DAQ hardware in any application.



Three Levels of DAQ Driver Software

1. NI-DAQmx is full-featured, high-performance driver software that maximizes productivity and performance through an intuitive programming interface and added software.
2. NI-DAQmx Base is a basic multiplatform DAQ driver with a subset of NI-DAQmx functionality.
3. NI Measurement Hardware DDK is a development kit for the creation of custom drivers using register-level programming.

Note: Not all drivers work with all devices. Visit **ni.com/support/daq/versions** to check compatibility.

NI-DAQmx Driver Software

NI-DAQmx is full-featured, high-performance driver software that maximizes productivity and performance through an intuitive programming interface and included measurement services. It works with broad ranges of programming languages, devices, buses, sensors, and even mixed-signal types. NI-DAQmx is the best option almost every time for Windows and Linux development.

Note: National Instruments recommends using the latest version of NI-DAQmx driver software for application development in NI LabVIEW, LabWindows™/CVI, and Measurement Studio 7.x or later on Windows and Linux.

Included Measurement Services[1]

NI-DAQmx includes a collection of measurement services designed to save data acquisition system developers time and money. A few of these services include:

Measurement & Automation Explorer (MAX) – software for configuring, calibrating, testing, and managing your hardware

DAQ Assistant – software for creating configuration-based data acquisition tasks and automatic code generation in popular application development environments

LabVIEW SignalExpress LE – free software specifically designed for basic data-logging applications

NI Device Monitor – software that provides a true plug-and-play experience for developers using USB DAQ modules

[1]Windows version only.

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NI-DAQmx Base Driver Software

NI-DAQmx Base offers a subset of NI-DAQmx functionality on Windows, Linux, Mac OS X, Windows Mobile, and Windows CE OSs. This driver software includes ready-to-use LabVIEW VIs and C function examples similar to those included in the full-featured NI-DAQmx software.

National Instruments built NI-DAQmx Base driver software using the Measurement Hardware DDK and developed the software almost entirely in the multiplatform LabVIEW graphical development environment. This lightweight, agile architecture makes it possible to quickly develop NI-DAQmx Base for additional OSs and devices in the future.

Developers creating applications for Windows or Linux systems should consider using the latest in full-featured NI-DAQmx.

Measurement Hardware DDK

The Measurement Hardware DDK (Driver Development Kit) provides development tools and a register-level programming interface for the development of custom driver software. Designed for OEM customers developing applications that require nonstandard OSs, it offers access to the full device register map and provides examples for completing common measurement and control functions. The Measurement Hardware DDK works with a selection of NI multifunction, analog output, digital I/O, and counter/timer I/O devices, including M Series, E Series, and S Series devices. Standard phone and e-mail support are not available for Measurement Hardware DDK users.

Developers considering the Measurement Hardware DDK should also study the advantages of industry-leading NI-DAQmx and NI-DAQmx Base software.

	NI-DAQmx High-Performance Multithreaded Driver	NI-DAQmx Base Multiplatform Basic Driver	Measurement Hardware DDK Custom Driver Development Tools
Bus and OS Support			
PCI/PXI/PCI Express/PXI Express	Windows Vista (32- and 64-bit)/XP/2000, Linux	Linux, Mac OS X	Linux, Mac OS X, QNX, RTX, Intime
USB	Windows Vista (32- and 64-bit)/XP/2000	Linux, Mac OS X, Windows Mobile/CE	Linux, QNX, Windows Mobile/CE
PCMCIA	Windows XP/2000	Windows Mobile	Windows Mobile/CE
CompactFlash	–	Windows Mobile	–
Programming Languages			
Programming languages	LabVIEW, ANSI C/C++, C#, Visual Basic .NET, and Visual Basic	LabVIEW, ANSI C	LabVIEW, ANSI C
LabVIEW interface	Complete polymorphic VIs and property nodes	Limited polymorphic VIs	Register-level VIs
Additional Measurement Services			
Development speed	●	◑	○
DAQ Assistant code generation	●[1]	–	–
Multithreaded I/O performance	●	–	–
Driver footprint	○	◑	●
Test panels	●	○	–
Automatic sensor scaling	●	–	–
Single programming interface for all hardware and I/O types	●	●	–
Measurement examples	>3000	~30	~30
Hardware			
M Series	•	•	•
S Series	•	•	•
E Series	•	•	•
B Series	•	•	•
USB DAQ	•	•	•
SC Series	•	–	–
SCXI	•	–	–
DSA	•	•	•
Digital I/O	•	•	•
Timing I/O	•	–	–
AO	•	•	•

KEY: ● Best, ◑ Better, ○ Good, • Some devices supported.

[1]Windows only.

For the latest information on applicable devices and OSs or new features, visit ni.com/daq/software.

NI Services and Support



NI has the services and support to meet your needs around the globe and through the application life cycle – from planning and development through deployment and ongoing maintenance. We offer services and service levels to meet customer requirements in research, design, validation, and manufacturing. Visit **ni.com/services**.

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- Upgrades purchased separately
- Online support only through KnowledgeBase, Discussion Forums, and Developer Zone
- Access to KnowledgeBase, example code, troubleshooting wizards, solutions, and white papers

Standard Service and Support Membership

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- Access to all online support including KnowledgeBase, Discussion Forums, Developer Zone, example code, troubleshooting wizards, solutions, and white papers
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ni.com • 800 813 3693
National Instruments • info@ni.com

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